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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : B66C 19/00 | A1

(11) International Publication Number: WO 00/48937

(43) International Publication Date: 24 August 2000 (24.08.00)

(21) International Application Number: PCT/KR99/00682

(22) International Filing Date: 12 November 1999 (12.11.99)

(30) Priority Data:
1999/5683 20 February 1999 (20.02.99) KR

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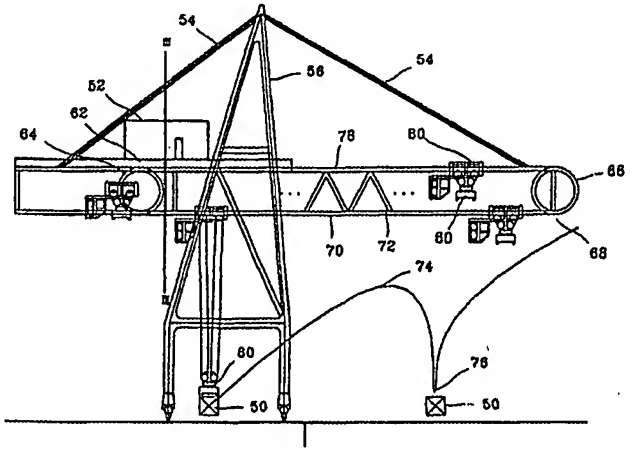
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: GANTRY CRANE HAVING CIRCULATING TROLLEYS



(57) Abstract

A Gantry crane having circulating trolleys (102), including a movable main tower pillar (56), a circulating boom, at least one trolley (102), at least one spreader (60), two hoists (106, 108), and a hook (116). The circulating boom is installed on the main tower pillar (56). The trolley (102) is installed to be capable of circulating along the circulating boom (100). The spreader (60) can be attached to and detached from the lower surface of the trolley (102), is combined with the trolley (102) when the trolley (102) moves, and is separated from the trolley (102) and descends to pick up a container (50). Two hoists (106, 108) are installed to be capable of moving along the circulating boom (100), each having a hoist motor (110) and a hoist wheel (112). The hook (116) is connected to the hoist motor (110), and combined with the spreader (104) by descending while vertically passing through the trolley (102) and is separated from the spreader (104) by ascending, so that the hook (116) descends with the spreader (104) combined with the hook (116) in order to pick up a container (150).

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GENTRY CRANE HAVING CIRCULATING TROLLEYS

Technical Field

The present invention relates to a Gentry crane, and more particularly, to a Gentry crane having circulating trolleys.

Background Art

Freight transportation using containers was started by the Sea-Land Service company in 1957, and has come to be widely used since the Matson Navigation Company started container transportation along the Atlantic Ocean in 1958. At present, 80% or more of freight transportation except for liquid or powder freight is conducted by the container transportation, and such percentage is estimated to increase in the future. With such an increase in the use of containers, the processing capability of a container crane has also improved compared to previously due to an increase in the capacity of a driving motor, the development of trolleys and spreaders, introduction of an automatic control system, or the like.

In a conventional Gentry crane, as shown in FIG. 1, a boom 14 is horizontally coupled to a main tower pillar 12, and a trolley 22 including a machinery room 16 and a spreader 24 is configured to be capable of reciprocating along the boom 14. The conventional Gentry crane having such a configuration picks up a container 18 using the spreader 24, connected to the trolley 22, which descends, and loads or unloads the container 18 from the wharf to a ship or from a ship to the wharf along the movement of the trolley 22.

However, such a conventional Gentry crane lowers the spreader 24 simultaneously while the trolley 22 moves along the boom 14 in order to pick up the container, so that some time is required to accurately position the spreader 24 over the container 18 standing by. Thus, the transfer of containers is delayed. Also, the spreader 24 is hung by a steel wire 20 even while it picks up the container and transfers it to a loading/unloading place, so that the container may be shaken by the motion of the trolley 22. Thus, it is

difficult to position the container at an accurate location, consequently significantly degrading the speed and efficiency of loading and unloading.

Disclosure of the Invention

An objective of the present invention to solve the above problems is to provide a Gentry crane having a circulating trolley, by which a container does not shake during unloading, and quick transfer of containers is achieved and the efficiency of unloading is increased by installing a plurality of trolleys and spreaders on booms and circulating them along the booms.

To accomplish the above objective, the present invention provides a Gentry crane having circulating trolleys, including: a movable main tower pillar; a circulating boom installed parallel to the ground at a predetermined height along the main tower pillar; at least one trolley installed to be capable of circulating along the circulating boom; at least one spreader that can be attached to and detached from the lower surface of the trolley, is combined with the trolley when the trolley moves, and is separated from the trolley and descends to pick up a container; hoists installed to be capable of moving along the circulating boom, each having a hoist motor and a hoist wheel; and a hook which is connected to the hoist motor, and is combined with the spreader by descending while vertically passing through the trolley and is separated from the spreader by ascending, so that the hook descends with the spreader combined with the hook in order to pick up a container.

Also, at least four protrusions are formed on the lower surface of each of the trolley and the hook. Trolley holes and hook holes, which are coupled to the protrusions of the trolley and the protrusions of the hook, respectively, are formed on the upper surface of the spreader. The spreader is decoupled from the trolley when the hook is combined with the spreader, and the hook is decoupled from the spreader when the spreader is combined with the trolley.

The hook is connected to a steel wire and the hoist motor within the hoist, such that the hook is elevated by adjusting the length of the steel wire by the operation of the hoist, and the hoist installed on the boom includes a

land-side hoist located on the side of the land and a sea-side hoist located on the side of the sea. The trolley is formed separately from the hoist, such that the trolley and the hoist can move independently along the boom.

Brief Description of the Drawings

FIG. 1 is a view illustrating a conventional Gentry crane;

FIG. 2 is a view illustrating a circulating Gentry crane which has already been proposed by the present applicant;

FIG. 3 is a lateral cross-sectional view of a Gentry crane taken along line III-III of FIG. 2;

FIG. 4 is a view schematically illustrating the configuration of a Gentry crane having circulating trolleys according to an embodiment of the present invention;

FIGS. 5 and 6 are views partially showing the configuration of a Gentry crane having circulating trolleys according to an embodiment of the present invention, to explain the operation of the Gentry crane; and

FIG. 7 is a view illustrating an example of a Gentry crane having circulating trolleys according to the present invention.

Best mode for carrying out the Invention

Referring to FIG. 2 showing a vertical circulating Gentry crane invented by the present applicant, a first boom 70 is installed parallel to the ground at a predetermined height along a movable main tower pillar 56, and a second boom 78 is installed a predetermined distance over and in parallel to the first boom 70. Also, a tensile rod 54 is connected to the second boom 78 to prevent the first and second booms 70 and 78 from drooping, and the first and second booms 70 and 78 are connected to each other via a connecting member 72, thereby forming a truss structure.

A plurality of trolleys 80 having spreaders 60 are movably installed on the first and second booms 70 and 78. First and second circulating boom connecting devices 66 and 64 are loaded on both ends of each of the first and second booms 70 and 78 such that the trolleys 35 circulate between the first

and second booms 70 and 78. A machinery equipment room 52 for controlling the first and second booms 70 and 78, the plurality of trolleys 80 having the spreaders, and the first and second circulating boom connecting devices 66 and 64, is installed on the main tower pillar 56.

In the operation of the vertical circulating Gentry crane having such a configuration, when a container is loaded from the quay on a container ship (not shown), first, a spreader included in a trolley 47 is lowered to pick up a container 50. The trolley 47 is moved toward the container ship along the first boom 70, and the container 50 is unloaded at a suitable position 76 of the container ship. The motion trajectory of the container 50 during shipping of the container is not a straight line but a curved trajectory 74.

After the container 50 is unloaded, the trolley 80 closely attaches the spreader 60 to itself by attracting the spreader as much as possible, moves toward the end 68 of the first boom 70, and then is moved to the second boom 78 installed over the first boom 70 via the first circulating boom connecting device 66. The trolley 47 moved to the second boom 78 moves to the end 62 thereof along the second boom 78, and then moved to the first boom 70 by the second circulating boom connecting device 64, thereby completing one cycle of the trolley 47. The first and second circulating boom connecting devices 66 and 64 can be a gear or a oil hydraulic device having a driving device.

When the container 50 is unloaded from the ship to the wharf, it is natural for the trolley 80 to move in a direction opposite to the direction described above in the same way.

FIG. 3 is a lateral cross-sectional view of a Gentry crane taken along line III-III of FIG. 2. Referring to FIG. 3, the first and second booms 70 and 78 are connected to each other by a vertical connecting member 72, thus forming a truss structure. The truss structure formed by the first and second booms 70 and 78 increases the stiffness of the entire construction, thus significantly increasing the load-carrying capacity against the bending of the first and second booms 70 and 78. Therefore, even if a large container ship of a postpanamax type comes alongside the pier of a harbor, no problems occur in the loading of containers. As shown in FIG. 3, the trolley 80 having a

spreader 60 carries the container 50 only when it moves along the first boom 70, so it is moved along the second boom 78 with a minimum passing area formed by closely attracting the spreader 60 to a trolley 80.

Also, recent Gentry cranes mostly include high performance motors, such that they move significantly fast even when picking up the container 50 and lifting the spreader 60. Accordingly, it takes a very short time to attract the spreader 60 to minimize the passing area while the trolley 80 moves along the second boom 78, so that an additional time until the entire circulation process is completed is not required.

FIG. 4 shows the configuration of a Gentry crane having circulating trolleys according to an embodiment of the present invention. As shown in FIG. 4, a Gentry crane according to the present embodiment includes a main tower pillar 152 capable of moving against the ground 123, a boom 100 horizontally installed on the main tower pillar 152, trolleys 102 circulating along the boom 100 for transferring a container 150 to a loading/unloading location, and land and sea hoists 106 and 108 installed on the upper side of the boom 100 for elevating a hook 116.

The size of each of the members depends on the berthing capacity of a harbor and the level of loading and unloading, and it is natural that a reinforcing pillar can be added to stably support the boom 100. A space is provided under the main tower pillar 152 so that the container 150 to be transferred arrives in advance and stands by.

The boom 100 is horizontally installed on the main tower pillar 152. In the present embodiment, as shown in FIG. 7, the boom 100 is constructed of a closed loop so that the plurality of trolleys 102 do cargo work while continuously circulating along the boom 100.

However, the boom 100 can have various shapes if it has a structure in which trolleys can circulate. Undoubtedly, a boom applied to a vertical circulating Gentry crane according to the previous invention (Korean Patent No. 143699) published by the present applicant, and a boom applied to a horizontal circulating Gentry crane according to the previous invention (Korean Patent No. 134235), can be used as the boom. Particularly, it is more

preferable that the boom is applied to the vertical circulating Gentry crane shown in FIGS. 2 and 3.

Two hoists 106 and 108 are installed on the upper side of the boom 100. The hoist 106 is a land-side hoist which is located on the side of the land, and the hoist 108 is a sea-side hoist which is located on the side of the sea. The land-side and sea-side hoists 106 and 108 each can move in the direction indicated by the arrow **a** along the boom 100 to adjust the positions thereof.

The hoists 106 and 108 each include a hoist motor 110, a hoist wheel 112, various electric facilities (not shown) having electric energy transformation equipment, and a control means (not shown). Also, each of the hoists 106 and 108 includes a motor (not shown) for driving the hoists to reciprocate. The reciprocation range of the sea-side hoist 108 is relatively very large compared to the land-side hoist 106 so that the container 150 can be set down at a suitable location on a wide loading/unloading place.

In the hoists 106 and 108 having such a configuration, devices except for the hoist wheel 112 can be installed in a separate machinery room (not shown) independent of the hoists 106 and 108. In this case, each of the hoists 106 and 108 includes only the hoist wheel 112, such that the hoists 106 and 108 can move quickly and lightly.

The hoist wheel 112 installed in the hoists 106 and 108 guides a steel wire 114 for connecting the hoist motor 110 to a hook 116. The steel wire 114 is connected to the hoist motor 110, and elevates the hook 116 attached to the end thereof by being guided by the hoist wheel 112. Also, the steel wire 114 has a sufficient length so that it sufficiently lays down the container 150 to the bottom of a ship 130 (see FIG. 6). If the hook 116 is raised as high as possible by driving the hoist motor 110, the hook 116 is placed below the bottom surfaces of the hoists 106 and 108. Hence, when the trolleys 102 pass under the hoists 106 and 108 while circulating along the boom 100, they can pass under the hook 116 without collapsing.

The hook 116 supports a spreader 104 from above by coupling to the same, where protrusions 125 (see FIG. 5) to be inserted into hook holes 128

(see FIG. 5) formed on the upper surface of the spreader 104 are formed on the lower surface, and pulleys 132 (see FIG. 5) wound around the steel wire 114 are installed on the upper surface. Accordingly, the hook 116 is hung on the steel wire 114 while being combined with the spreader 104, and can be moved upward and downward by the hoist motor 110.

The plurality of trolleys 102, which move along the boom 100, includes a wheel 140 and a motor (not shown) for driving the wheel 140. The wheel 140 is supported by the boom 100, and allows the trolley 102 to move along the boom 100. The movement of the trolley 102 is controlled in a remote system by a separate operating room (not shown).

Protrusions 124 (see FIG. 5) are formed on the lower surface of each of the trolleys 102, and are coupled to trolley holes 126 (see FIG. 5) formed on the upper surface of the spreader 104, such that the trolley 102 moves along the boom 100 with the spreader 104 hung under the trolley 102. That is, the hook holes 128 to be coupled to the hook 116, and the trolley holes 126 to be coupled to the trolley 102 are formed on the upper surface of the spreader 104. The trolley 102 stops under the land-side hoist 106 to load the container 18, and also stops under the sea-side hoist 108, which will be described later.

The combination of the trolley 102 with the spreader 104, and the combination of the hook 116 with the spreader 104 are not made simultaneously, and are designed to be selectively made by various well-known control means. The selective combination means that when the spreader 104 is newly coupled to the hook 116, the spreader 104 is separated from the trolley 102, and on the other hand, when the spreader 104 is coupled to the trolley 102, the spreader 104 is separated from the hook 116. This selective combination can be achieved in various ways by several well-known apparatus instrumental devices.

Furthermore, not only can the mechanism of the combination of the spreader with the trolley and the spreader with the hook be applied to the circulating Gentry crane according to the present invention, but it can also be applied to various types of cranes including transfer cranes which are installed

on an open storage yard or other physical distribution bases.

FIGS. 5 and 6 schematically illustrate the operation for achieving loading of containers by a Gentry crane according to an embodiment of the present invention. For convenience of explanation, several hoists 106 and 108 are shown, but actually one land-side hoist 106 and one sea-side hoist 108 are installed as described above.

FIG. 5 shows the operations of the trolley 102 and the spreader 104 arriving under the land-side hoist 106. The same reference numerals as those described above denote the same members.

Referring to FIG. 5, the trolley 102 and the spreader 104 coupled to the lower surface of the trolley 102 are held under the land-side hoist 106 while moving along the boom 100 in the direction indicated by arrow **b**. As described above, the protrusions 124 of the trolley 102 are inserted into and coupled to the trolley holes 126 formed on the upper surface of the spreader 104, such that the spreader 104 is stably located without shaking under the trolley 102 even if the moving speed of the trolley 102 is changed.

The land-side hoist 106 is pre-located and waits directly over the container 150. At this time, the hook 116 is attracted to the lower surface of the hoist 106 and is kept as high as possible. The land-side and sea-side hoists 106 and 108 can be moved to certain locations by an operator directly operating a separate control room (not shown) installed in each of the hoists 106 and 108. Alternatively, the hoists 106 and 108 can be moved to certain locations by remote control.

The land-side hoist 106 waits directly over the container 150, and the sea-land hoist 108 of FIG. 6 waits directly over a position on a ship 130 of FIG. 6 where the container is to be loaded. Accordingly, it is preferable that the position of the land-side hoist 106 must be controlled in advance according to the position of a container which is carried by a container transport truck and waits under the boom, and the sea-side hoist 108 must be positioned over the location at which the container is to be loaded.

When a trolley 102 arrives under the land-side hoist 106 waiting at a certain location, the hook 116 attracted to the hoist 106 as much as possible

starts descending. The hook 116 descends, passes vertically through the trolley 102 supported by the boom 100, and arrives at a spreader 104. When the hook 116 arrives at the spreader 104, the protrusions 125 formed on the lower surface of the hook 116 is inserted into the hook holes 128 formed on the upper surface of the spreader 104, as described above. In this way, the hook 116 is coupled to the spreader 104.

Simultaneously with the combination of the hook 116 to the spreader 104, the spreader 104 is separated from the trolley 102 by separating the protrusions 124 on the trolley 102 from the trolley holes 126 formed on the upper surface of the spreader 104. Consequently, as the hook 116 descends, the support force by which the spreader 104 is hung is transferred from the trolley 102 to the hook 116. At this time, the spreader 104 is kept at the same height.

The transfer of the support force can be achieved by various well-known instrumental methods as described above. For example, an arbitrary signal transmission wire (not shown) is installed between the trolley hole 126 and the hook hole 128. When the protrusion 124 is inserted and locked into the trolley hole 126, a signal is transmitted to the hook hole 128 to control the protrusion 125 inserted and locked into the hook hole 128 to be unlocked therefrom. On the contrary, when the protrusion 125 is inserted and locked into the hook hole 128, the protrusion 124 inserted into the trolley hole 126 can be released therefrom by the same method as described above. The protrusions 124 and 125 include several well-known latches.

As described above, in a state where the hook 116 descends and is coupled to the spreader 104, and simultaneously, the spreader 104 is unlocked from the trolley 102, the hook 116 descends toward the container 150, with the spreader 104 being picked up, by the continuous operation of the hoist motor 110 and the hoist wheel 112. Pulleys 132 are installed on the upper surface of the hook 116, and wound by a steel wire 114, such that the hook 116 is supported. The steel wire 114 is released from the pulleys 132 by the driving of the hoist motor 110, such that the hook 116 descends.

Container hooks 120 are formed on the lower surface of the spreader

104, and well-known combination holes 122 to be combined with the container hooks 120 are formed on the upper surface of the container 150.

When the spreader 104 descends and arrives at the container 150, the container hooks 120 of the spreader 104 are inserted and locked into the combination holes 122 formed on the upper surface of the container 18. At this time, the hook 116 descends straight downward, such that it is not shaken from side to side. In this state, when the hook 116 ascends, the spreader 104 ascends by being attracted by the hook 116, with the container 150 being picked up.

When the hook 116 continues to ascend and the spreader 104 arrives at the lower surface of the trolley 102, the protrusions 124 on the lower surface of the trolley 102 are inserted into the trolley holes 126 of the spreader 104, such that the trolley 102 is combined with the spreader 104. At this moment, the hook 116 is separated from the spreader 104, continues to ascend up to the lower surface of the land-side hoist 106, and waits at the lower surface thereof. Finally, the spreader 104 and the container 150 are coupled to the lower surface of the trolley 102 which moves by being supported by the boom 100, such that the container 150 can be moved toward a location where the container 150 is to be loaded, in the direction indicated by arrow **c** with the movement of the trolley 102.

FIG. 6 shows the operations of the trolley and the spreader which have arrived under the sea-side hoist. Referring to FIG. 6, the container 150 transferred in the direction indicated by arrow **c** from the land side stands by under the sea-side hoist 108 which has been pre-located over the position at which the container is to be loaded. The sea-side hoist 108 can be previously moved to the loading place by an operator in an operation room (not shown) included in the hoist 108, so that it can load the container to its proper place regardless of the area of the loading place. The sea-side hoist 108 can also be remote-controlled by a separate operating room, similarly to the case of the land-side hoist 106.

When the trolley 102 arrives under the sea-side hoist 108, and the spreader 104 and the container 150 are thus located under the sea-side hoist

108, the hook 116 in a waiting state is lowered by the operation of the hoist motor 110 and coupled to the spreader 104. As described above referring to FIG. 5, when the hook 116 is coupled to the spreader 104, the spreader 104 is separated from the trolley 102. Thus, when the hook 116 continues to descend in this state, the spreader 104 is separated from the trolley 102, and the container 150 descends to the loading place such as the ship 130.

The container 150 arriving at the loading place is separated from the spreader 104 by a well-known method and loaded on the ship 130, and the spreader 104 again ascends in a directly vertical direction and is coupled to the trolley 102. Simultaneously, the hook 116 is separated from the spreader 104, ascends toward the hoist 108, and waits below the lower surface of the sea-side hoist 108. The trolley 102 from which the hook 116 has been separated, and the spreader 104 coupled to the trolley 102, move from a place under the sea-side hoist 108 in the direction indicated by arrow **d** along the boom 100, and are positioned at the original location. Simultaneously, the sea-side hoist 108 moves to a location where the next container is to be loaded, along the boom 100, and waits at the location.

FIG. 7 is a plan view illustrating an example of a Gentry crane having circulating trolleys according to the present invention. As shown in FIG. 7, a boom is shaped of a loop such that trolleys 102 circulate along the boom. Since the trolleys 102 circulate in one direction along the boom, loading of containers is continuously achieved, and the Gentry crane has a very fast processing capability.

However, the boom of the Gentry crane according to the present invention can have various shapes as long as it has a structure in which the trolleys can circulate. Thus, besides the loop-shaped boom, various shapes of booms can be applied to the vertical circulating Gentry crane shown in FIGS. 2 and 3.

Industrial Applicability

In the Gentry crane according to the present invention adopting the above-described boom, trolleys load containers while circulating along the

boom, so that the loading/unloading speed is very fast, and the processing efficiency is high. Also, the trolleys move with the spreader combined therewith, not with the spreader dangling from the trolleys, so that shaking of the spreader due to a change in the movement speed of the trolleys does not occur, thus, quickly positioning the spreader at an accurate location. Even when the spreader moves while picking up the container, the container does not shake, thus increasing the movement speed of the trolley. Therefore, loading/unloading of containers can be rapidly and stably performed.

Although the invention has been described with reference to a particular embodiment, it will be apparent to one of ordinary skill in the art that modifications of the described embodiment may be made without departing from the spirit and scope of the invention.

What is claimed is:

1. A Gentry crane having circulating trolleys, comprising:

a movable main tower pillar;

a circulating boom installed on the main tower pillar;

at least one trolley installed to be capable of circulating along the circulating boom;

at least one spreader that can be attached to and detached from the lower surface of the trolley, is combined with the trolley when the trolley moves, and is separated from the trolley and descends to pick up a container;

two hoists installed to be capable of moving along the circulating boom, each having a hoist motor and a hoist wheel; and

a hook which is connected to the hoist motor, and is combined with the spreader by descending while vertically passing through the trolley and is separated from the spreader by ascending, so that the hook descends with the spreader combined with the hook in order to pick up a container.

2. The Gentry crane having circulating trolleys of claim 1, wherein at least four protrusions are formed on the lower surface of each of the trolley and the hook, wherein trolley holes and hook holes, which are coupled to the protrusions of the trolley and the protrusions of the hook, respectively, are formed on the upper surface of the spreader, and wherein the spreader is decoupled from the trolley when the hook is combined with the spreader, and the hook is decoupled from the spreader when the spreader is combined with the trolley.

3. The Gentry crane having circulating trolleys of claim 2, wherein the hook is connected to a steel wire and the hoist motor within the hoist, such that the hook is elevated by adjusting the length of the steel wire by the operation of the hoist, and the hoist installed on the boom includes a land-side hoist located on the side of the land and a sea-side hoist located on the side of the sea.

4. The Gentry crane having circulating trolleys of claim 1, wherein the trolley is formed separately from the hoist, such that the trolley and the hoist can move independently along the boom.

5. The Gentry crane having circulating trolleys of claim 1, wherein the circulating boom is a vertical circulating boom.

6. The Gentry crane having circulating trolleys of claim 1, wherein the circulating boom is a horizontal circulating boom.

FIG. 1
(PRIOR ART)

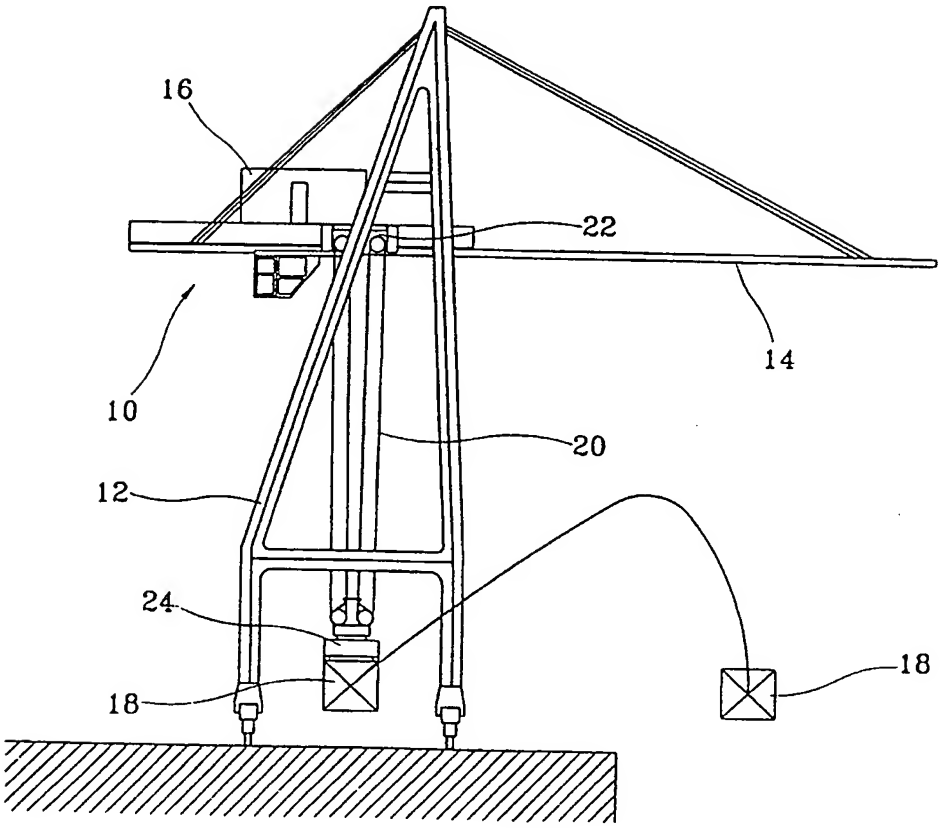

FIG. 2

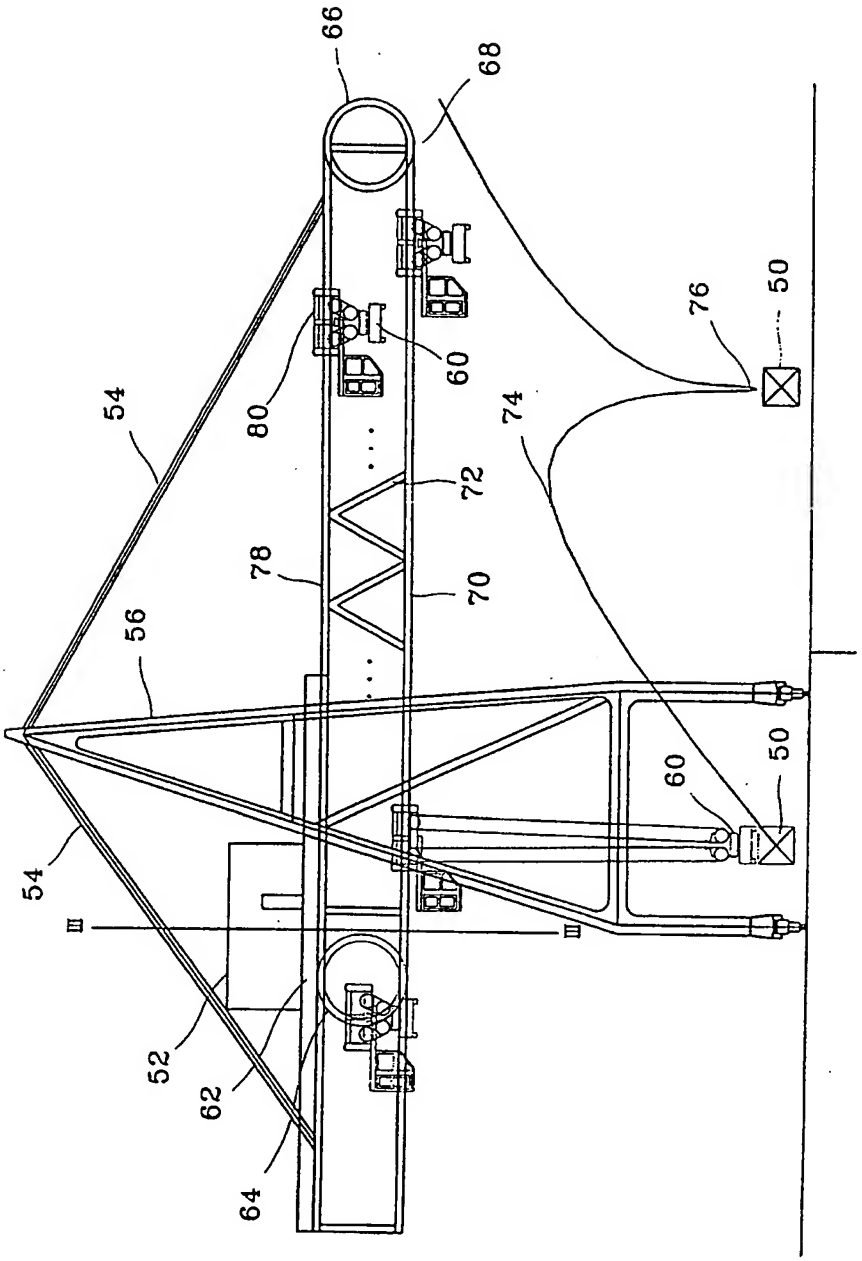

FIG. 3

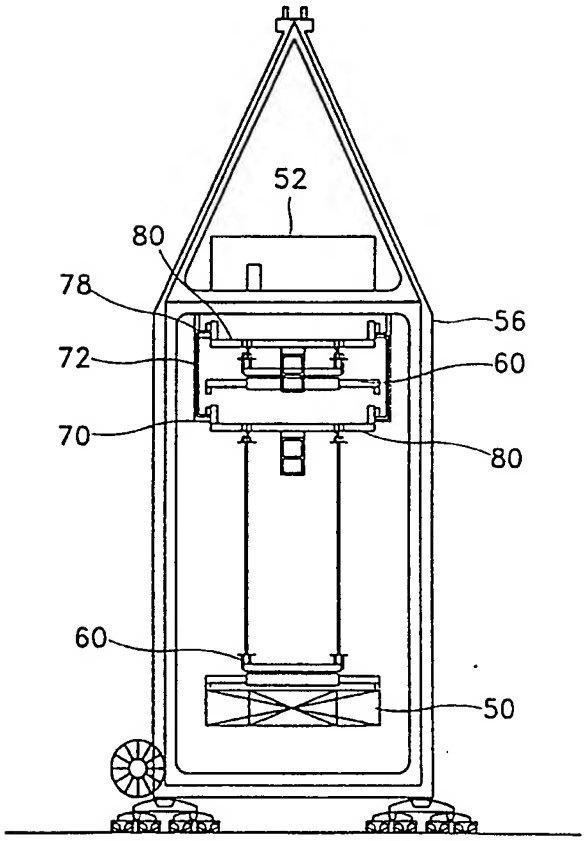

FIG. 4

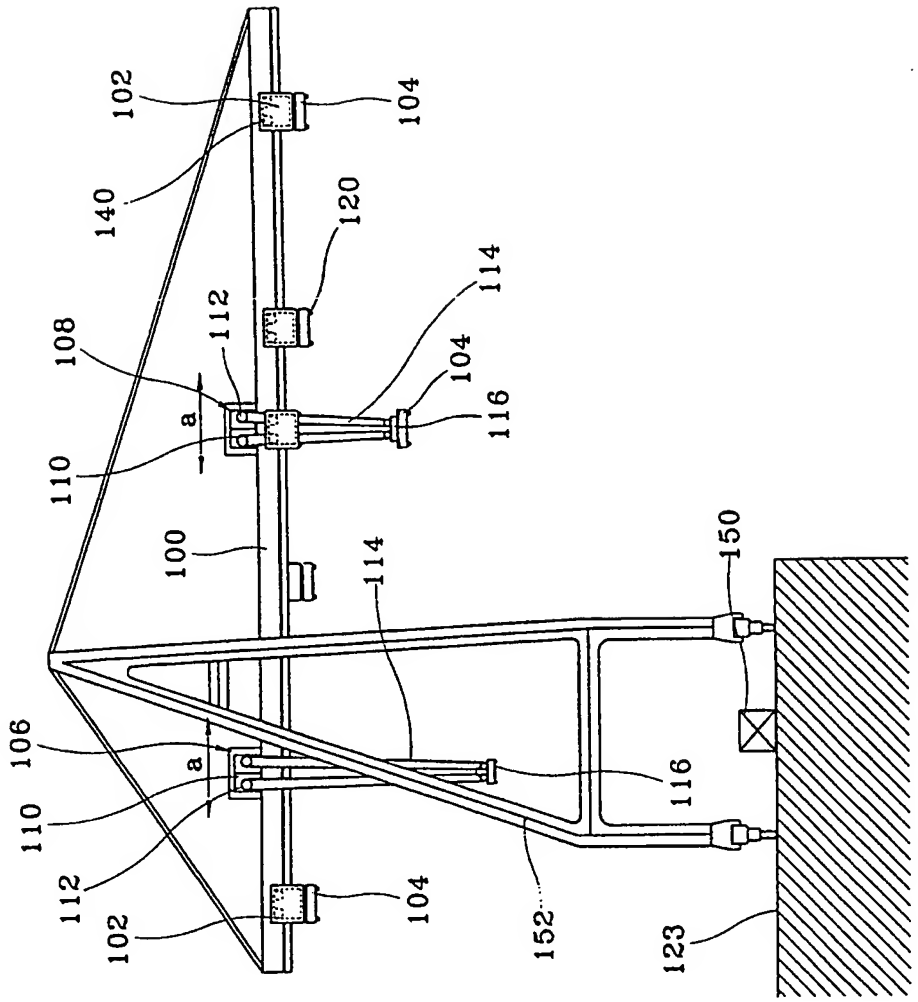
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FIG. 5

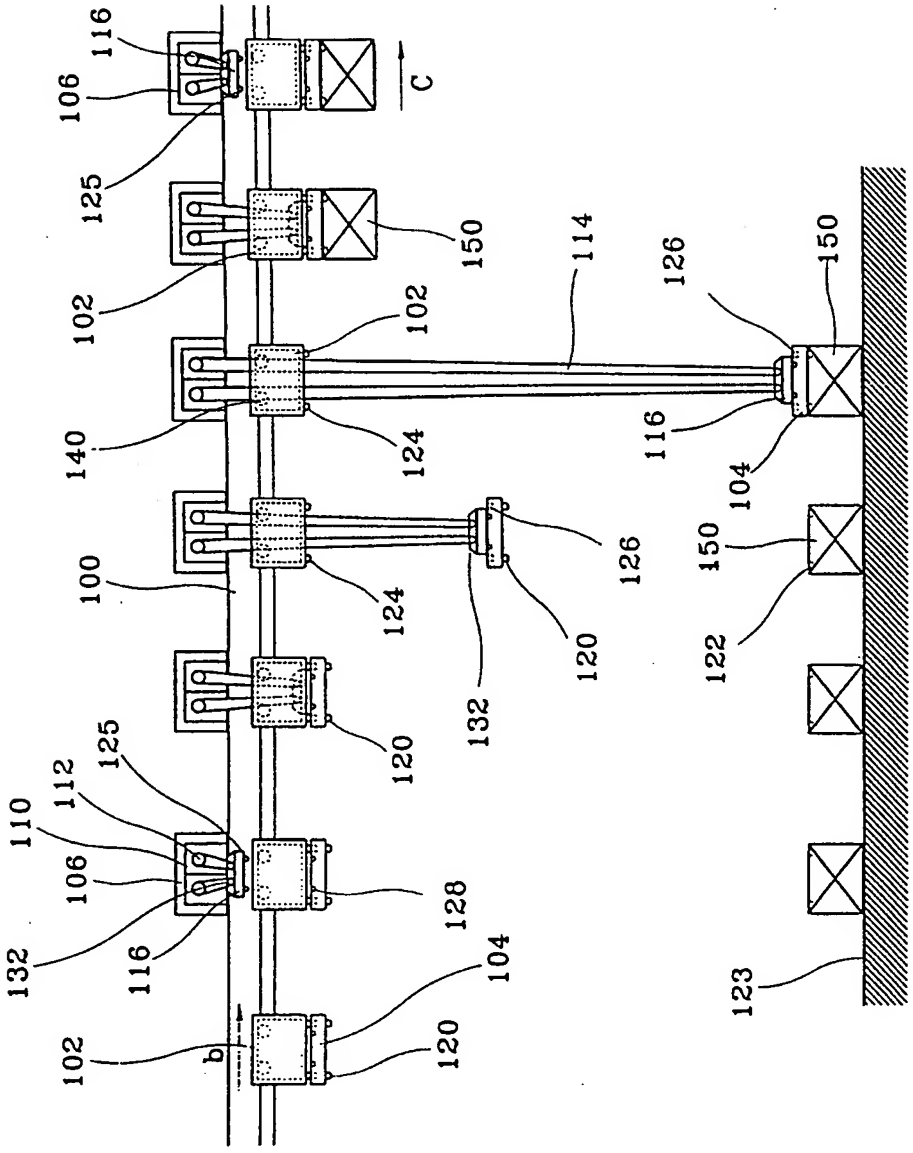
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FIG. 6

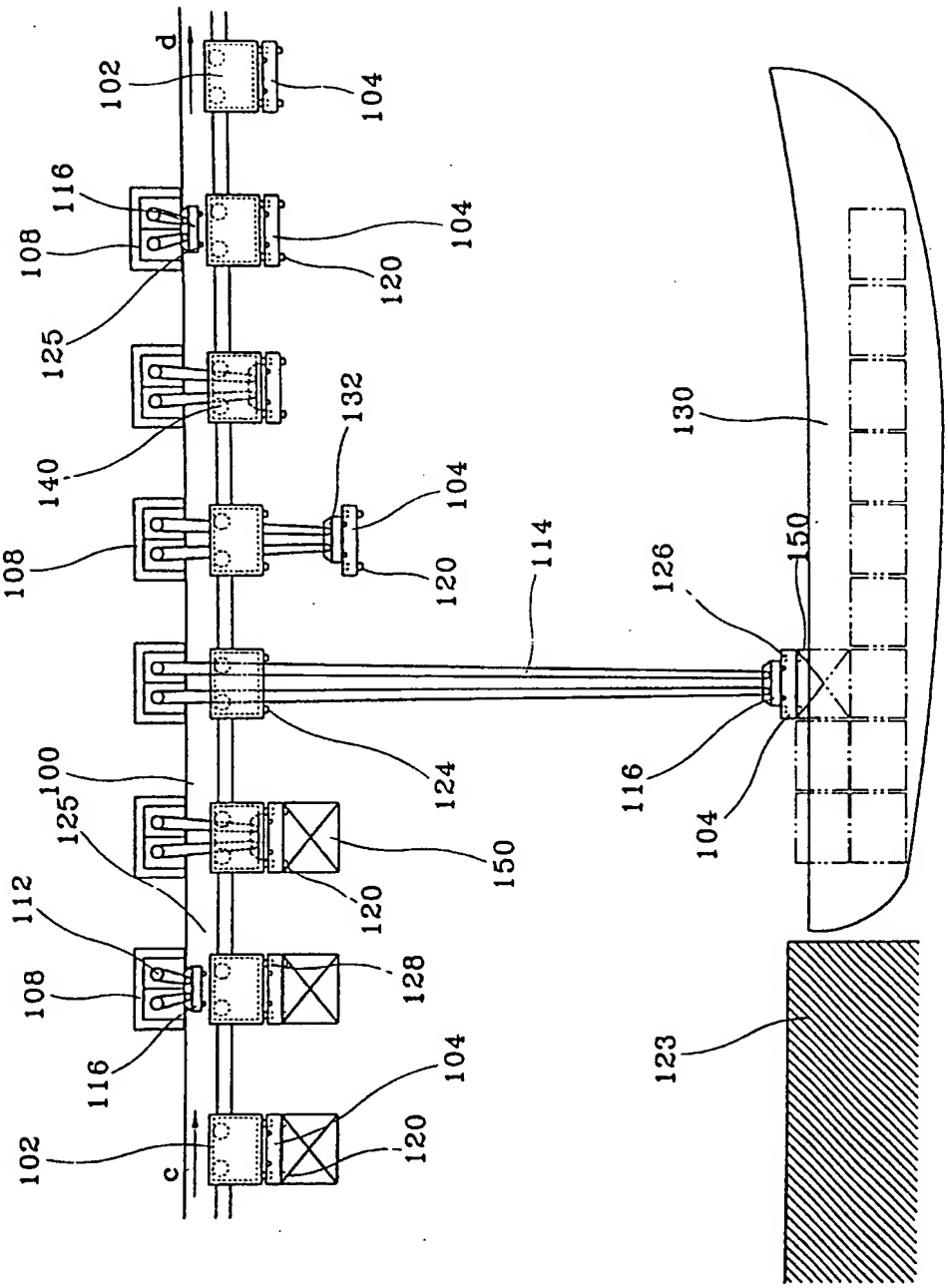
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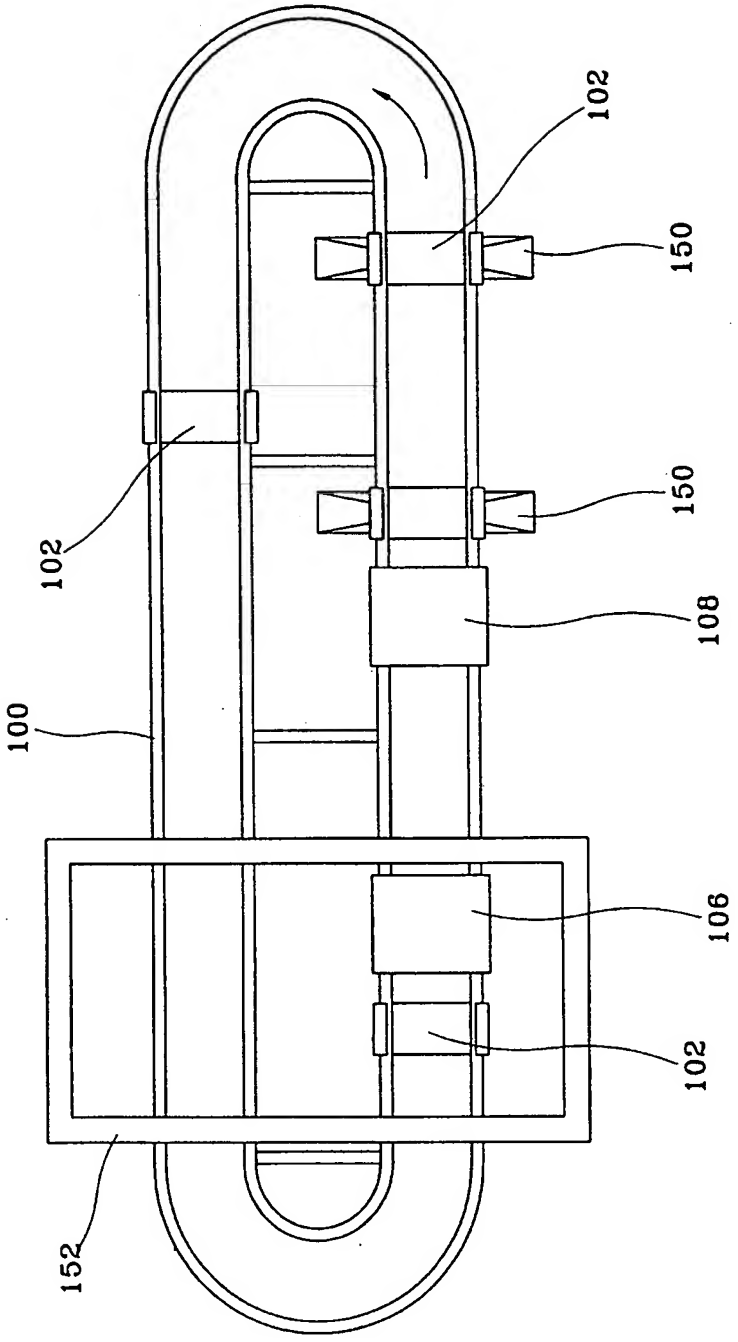
FIG. 7



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 99/00682

A. CLASSIFICATION OF SUBJECT MATTER

IPC[7]: B 66 C 19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC[7]: B 66 C 7/00, 7/12, 17/00, 17/20, 19/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Epodoc

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	NL 1001548 C2 (IV-CONSULT B.V.) 02 May 1997 (02.05.97), fig. 1,2.	1,6
A	US 4602566 A (KERNKAMP) 29 July 1986 (29.07.86), fig. 1,2.	1,6
A	US 4897012 A (BREWER) 30 January 1990 (30.01.90), abstract; fig. 1.	1,4,5
A	EP 0342655 A2 (TAX INGENIEURGESELLSCHAFT MBH) 23 November 1989 (23.11.89), fig. 1; claim 1.	1,2,4
A	US 3630390 A (HANS TAX) 28 December 1971 (28.12.71), fig. 1.	1,4

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

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„&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 January 2000 (10.01.00)	28 February 2000 (28.02.00)
Name and mailing adress of the ISA/AT Austrian Patent Office Kohlmarkt 8-10; A-1014 Vienna Facsimile No. 1/53424/200	Authorized officer Nimmerrichter Telephone No. 1/53424/314

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/KR 99/00682

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